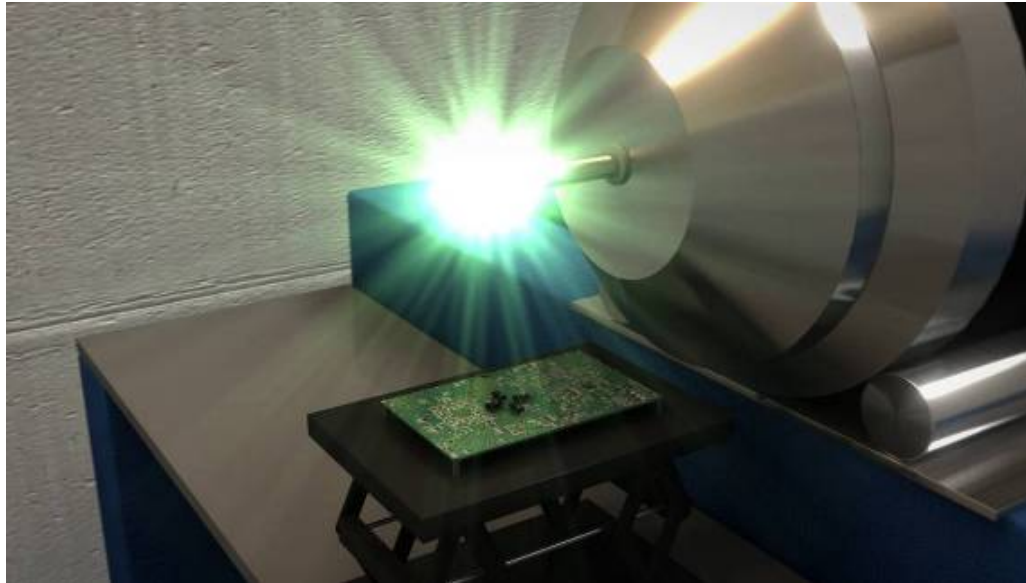

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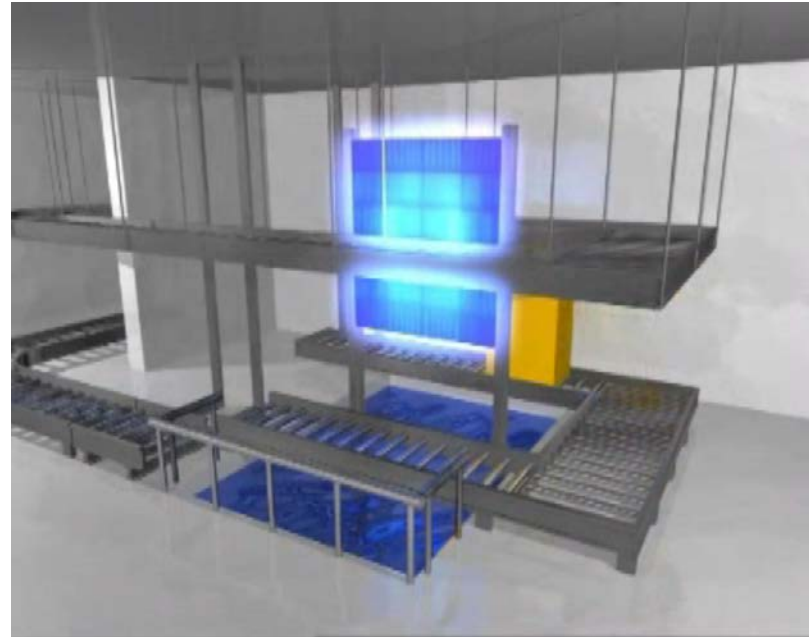
Business Unit “Nuclear Effects in Electronics and Optics (NEO)”
Fraunhofer Institute for Technical Trend Analysis (INT)



Irradiation facilities

External Co-60 source: BGS

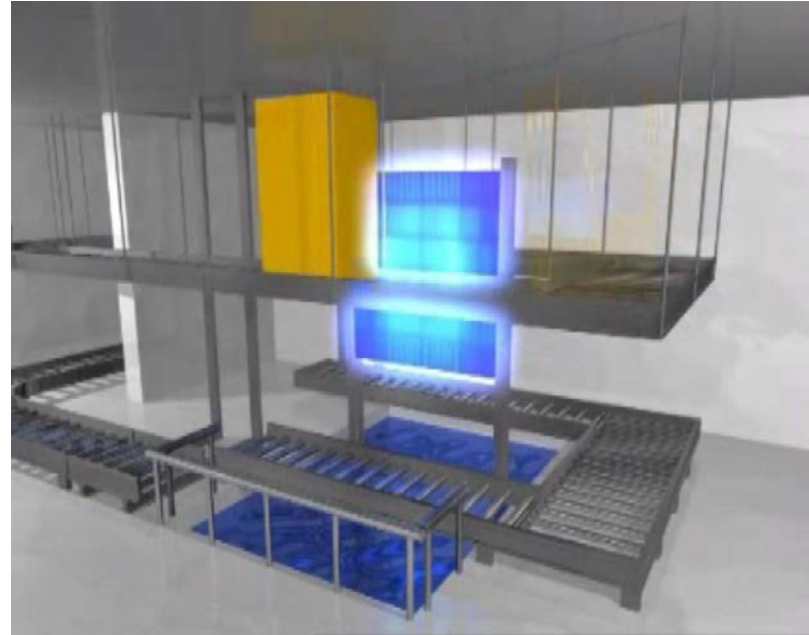
- Maximum activity:
 - 2×10^{17} Bq (5 MCi)
- Maximum dose rate:
 - ~ 70 kGy(H₂O)/h (7 MRad/h) for small DUTs
- MGy irradiations possible during few weeks or even days
- Dosimetry:
 - **Calculated and measured**
- Uncertainty of dosimetry:
 - ~ 5.5 to 6.5 %



Irradiation facilities

External Co-60 source: BGS

- Temperature range:
 - Room temperature
 - Tbd liquid nitrogen
- Large test volume (~1.9 m³)



Irradiation facilities

External Co-60 source: BGS

- 2 level of transport
- Individuel irradiation dose on each palett
- Several circulations possible to accumulate dose
- Up to 24 paletts at the same time
- Possibility of irradiation of special containers or boxes



Irradiation facilities

External Co-60 source: BGS

- Actual dose rate:
 - ~6 kGy(H₂O)/circulation (600 kRad/circulation)
 - ~9 kGy(H₂O)/h (900 kRad/h)

- → 10 MGy(H₂O) could be reached after 46 days of non-stop irradiation

- Mounting time ~4 hours per operation (load, unload)

Irradiation facilities

External Co-60 source: BGS

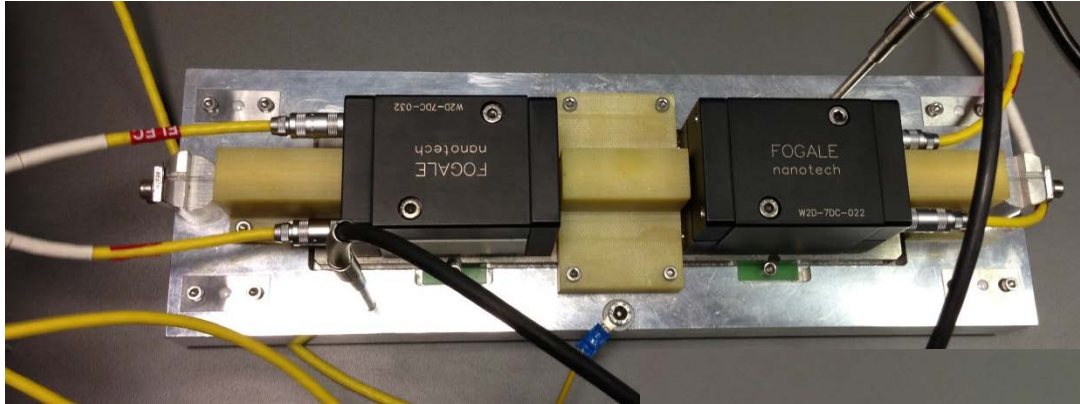
- Temperature measured directly on DUT



Irradiation facilities

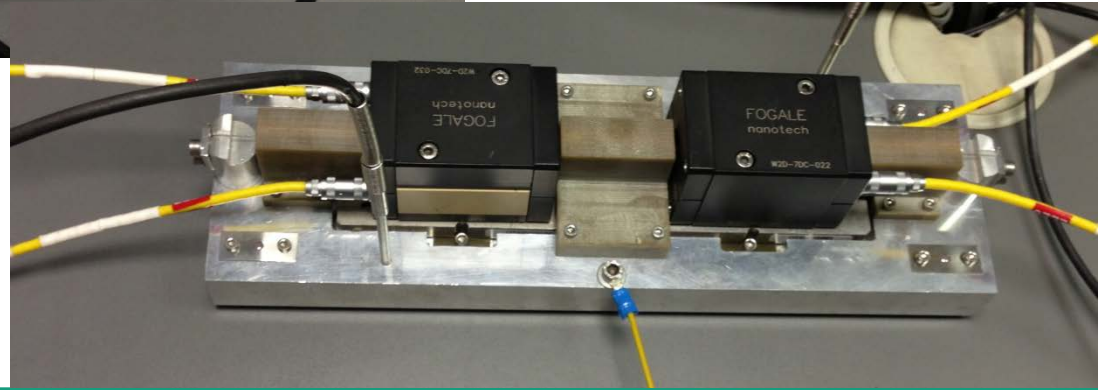
External Co-60 source: BGS

- Radiation induced change of color of DUT



Before
irradiation

After 0.1 MGy(H₂O)
irradiation



Irradiation facilities

External Co-60 source: BGS

■ Piezo Measurements

